

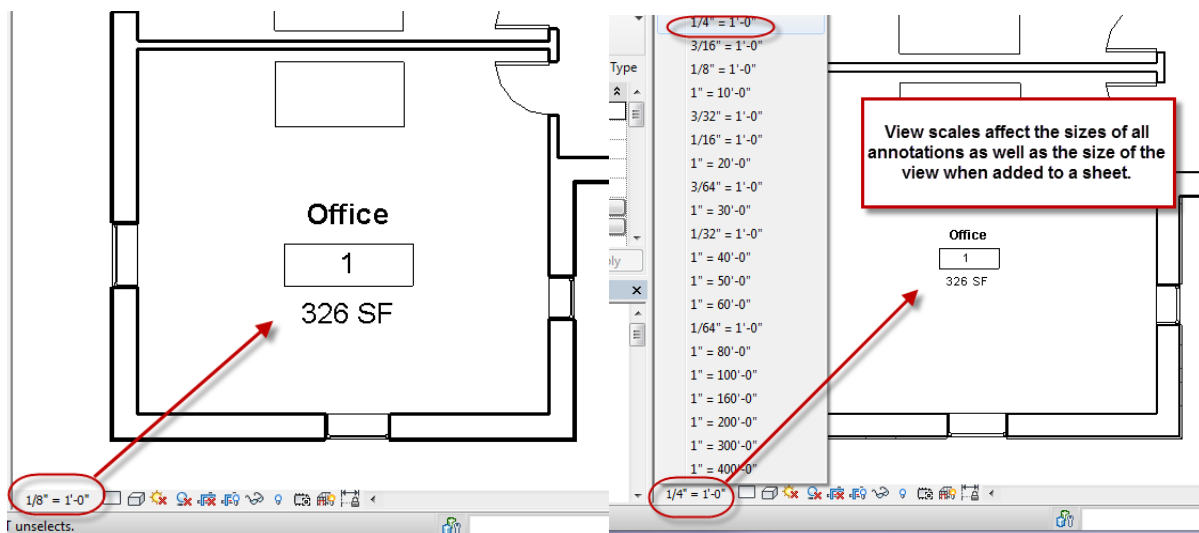
AGENDA:

1. Introduction to View Controls
2. View Properties and Visibility / Graphic Overrides
3. 3D View Navigation Controls
4. Introduction to Creating Views

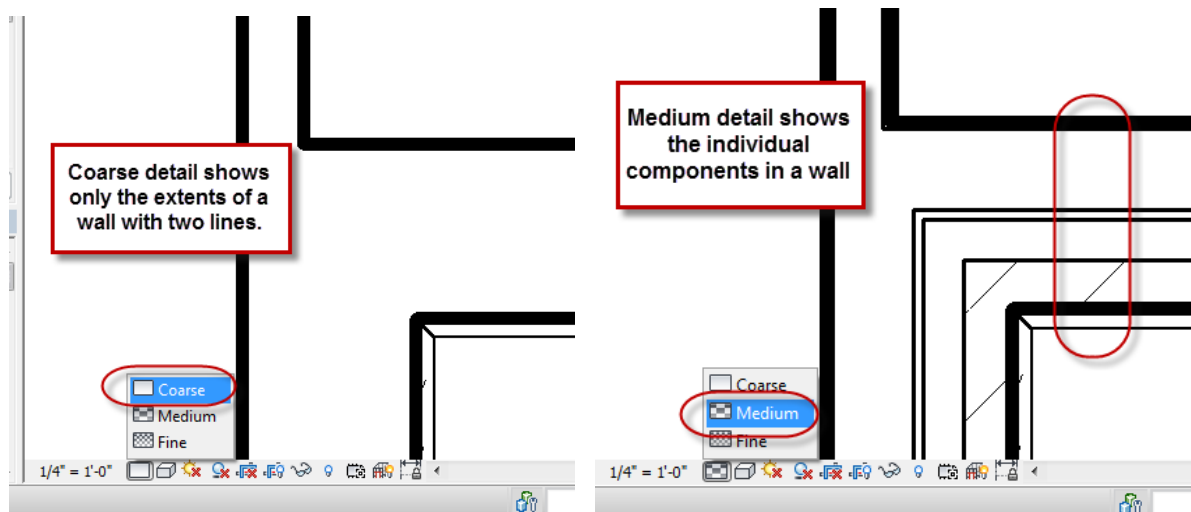
1. Introduction to View Controls and View Properties

Views in Revit may be shown with different settings which affect not only the graphics being displayed but also the level of detail which is depicted. The View Control Bar in the lower left section below the drawing view area provides access to the most commonly used settings to modify the View Properties applicable to most view types.

The SCALE setting at the left side of the View Control Bar is used to modify the size of annotation elements and control the level of detail which will be displayed for each view in your project. For example a floor plan being shown at $1/8" = 1'-0"$ might show a door with a single line for the door panel, while the same door in a plan at $1/4" = 1'-0"$, might show the same door with a rectangle for the door panel. In a plan at 1:100, notes and dimensions will appear larger relative to the size of the building elements than they will if the floor plan is done at 1:50. All text, tags, dims, etc. in Revit are linked to the scale setting for a particular view and will automatically resize if you change the scale setting.



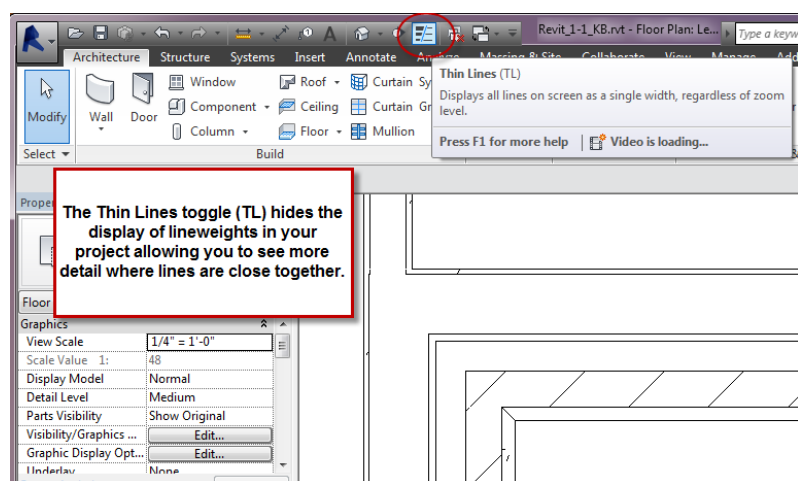
The Detail Level setting to the right of the Scale setting on the View Control Bar is used to indicate the level of detail assigned to a particular view. There are three settings available: Coarse, Medium, and Fine. Elements may be defined to show different structures as the level of detail changes. For example at a coarse level, a Brick Veneer wall might show only two lines to represent the extents of the wall. At a medium or fine level of detail, the same wall might show separate lines for the bricks, air space, sheathing, and structural backup wall.



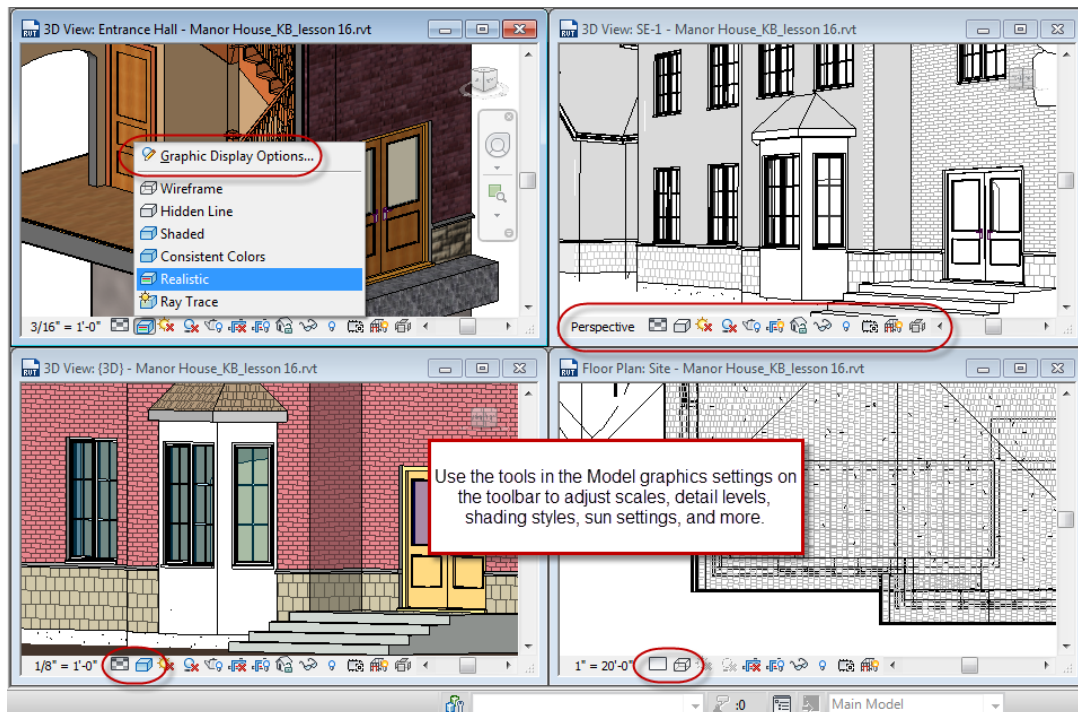
If you have trouble with line weights concealing some of the detail in your views, you can toggle the display of line weights with the Thin Line toggle on the View toolbar. This will force all line weights, in all views to be displayed with a single pixel width.

The image to the right shows the same wall type as in the images above, but the Thin Line display reveals elements which were previously hidden.

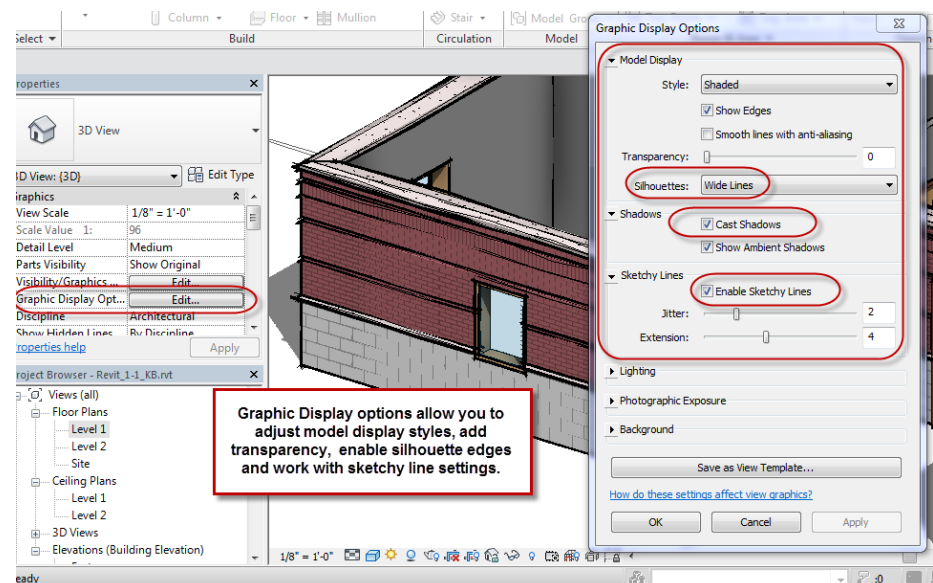
The Thin Line toggle applies to all views not just the current project view. This control is for display purposes only and does not affect plotted output.



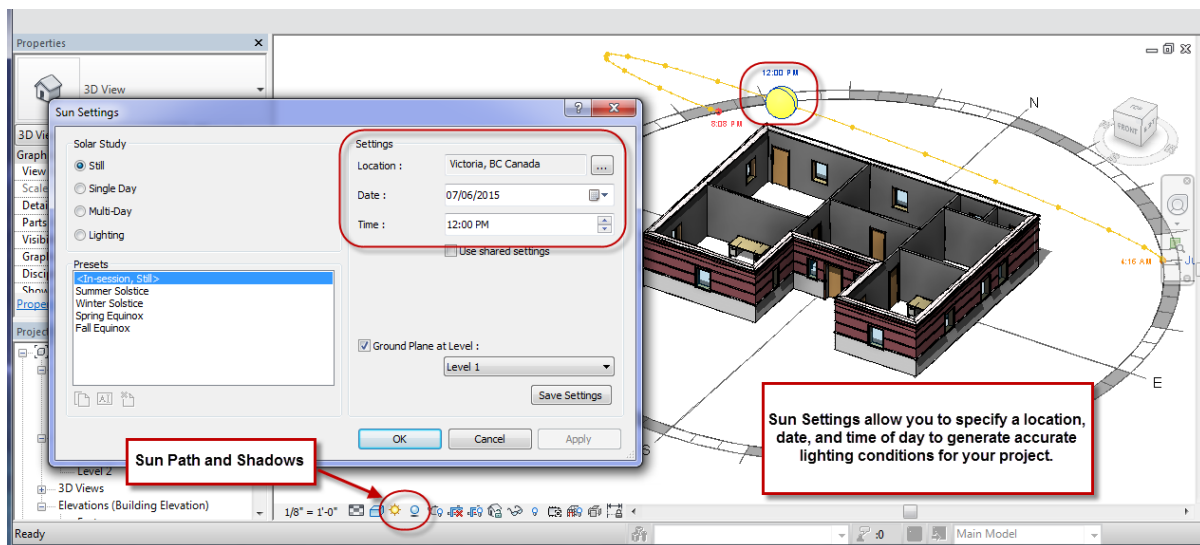
Model Graphics Styles allow you to specify different graphic styles for a view. There are six choices: Wireframe, Hidden Line, Shaded, Consistent Colors, Realistic, and Ray Trace. Model graphics may be set independently for all project views, including Plans and Elevations as well as 3D views. The Shaded views will take more processing power than wireframe or hidden.



From the cursor menu for shading style, you can open the Graphic Display Options dialog. Sketchy lines may be enabled and Silhouette Edges may be enabled for a hidden line or shaded with edges view to give an artistic touch by setting a line style for silhouette edges.

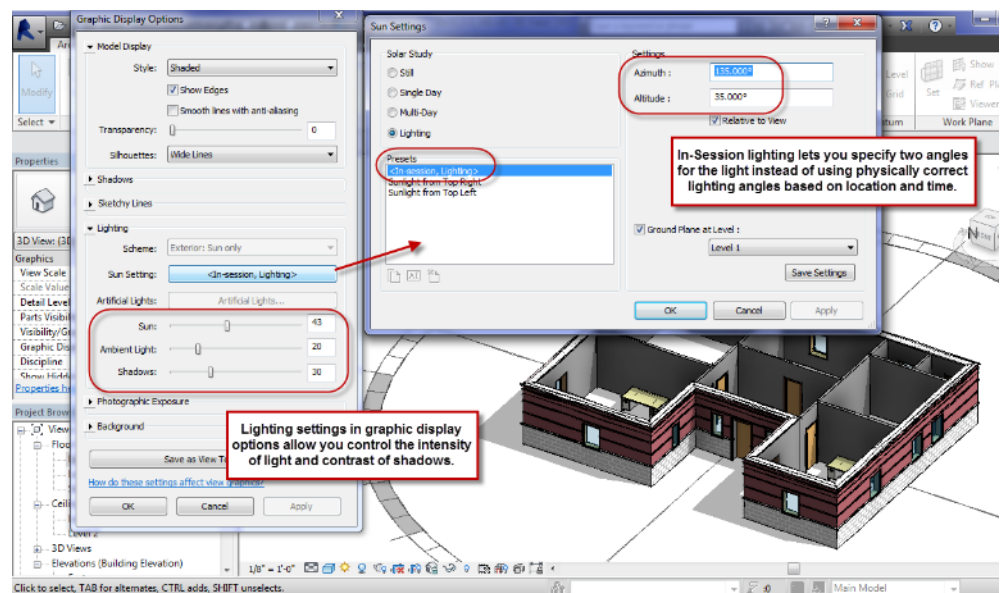


To the right of the Model graphics choices, you will find a toggle to enable a Sun Path, and another to turn on the display of Shadows for a view. The Sun Path tool also allows you to access the Sun settings for a particular view. Detailed Shadow studies can be created by setting the sun angle with a geographic location, date and time. Enabling Shadows, especially for larger models can have a significant impact on performance. Turning on the Sun Path option on the view control bar allows you to dynamically adjust the time and date in the viewport.



The Graphic Display Options dialog also provides access to lighting controls.

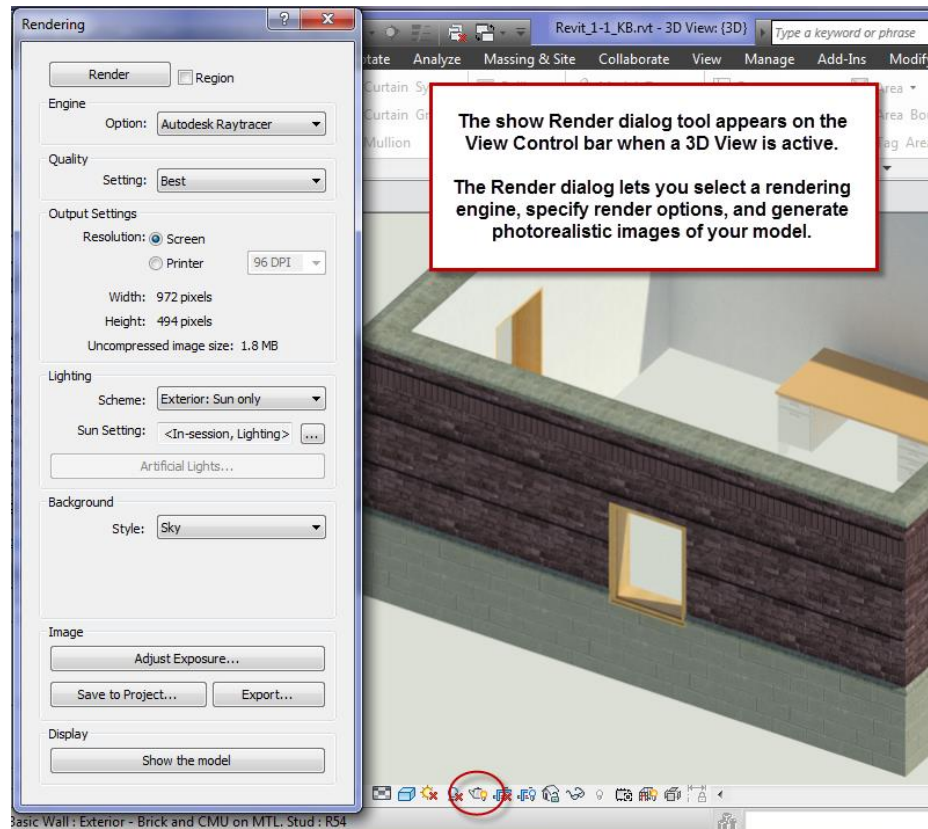
Available options allow you to set the brightness of the sun and the angle that it will use to direct light at the building, as well as how dark the shadows will appear in a shaded view with shadows enabled.



If a 3D View is current, the next setting on the View Control Bar opens the Render dialog box. Here you can choose the Quality, Output Settings, Lighting scheme, Background settings and exposure settings for a rendering. The view can then be rendered and the rendered image can be saved within the Project or exported to an external file.

Rendering has been simplified in current versions of Revit. (2016 or later) with the addition of the Autodesk Raytracer rendering engine. The MentalRay render engine is also available.

It is possible to render a plan or elevation view, by creating a 3D view and then setting it to orient to a 2D direction or existing view.

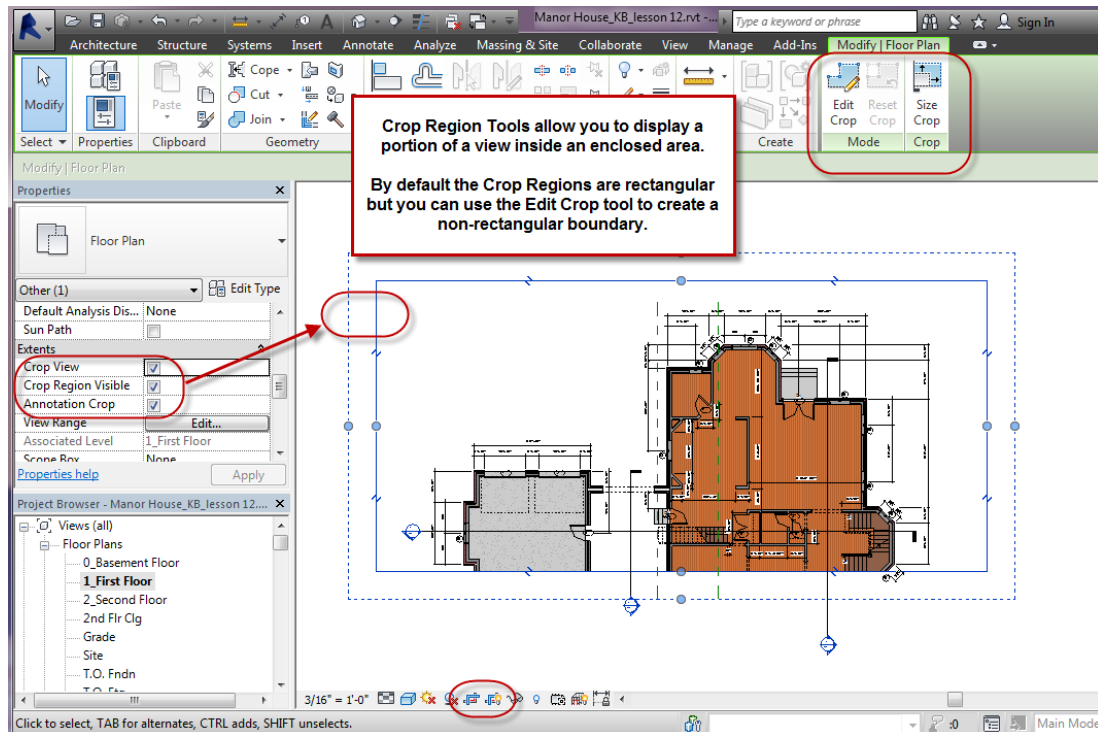


Revit generates photorealistic images of a building model complete with various effects and content such as interior and exterior light sources, realistic materials, plants, people, entourage, and decals.

Creating high quality rendered images is dependent on many interrelated factors including not only choosing the correct render setting but also generating good views, assigning the correct materials, defining appropriate lighting solutions, and making trade-offs between quality and appearance.

Rendering large images of complex models, with realistic materials and lots of lights can be surprisingly time consuming and can require patience as well as premium hardware. Rendering will be covered in depth in a future class.

The Crop Region and Show Crop Region tools on the View Control bar allow you to define a rectangular area in which your view will be displayed. All interactive views have a Crop Region which will be visible or invisible depending on how the view was created. Plan and Elevation views, for example do not display their crop region by default but Section and Detail views do display the Crop region. The Show Crop Region / Hide Crop Region tool allows you to toggle the visibility of the Crop Region Frame.



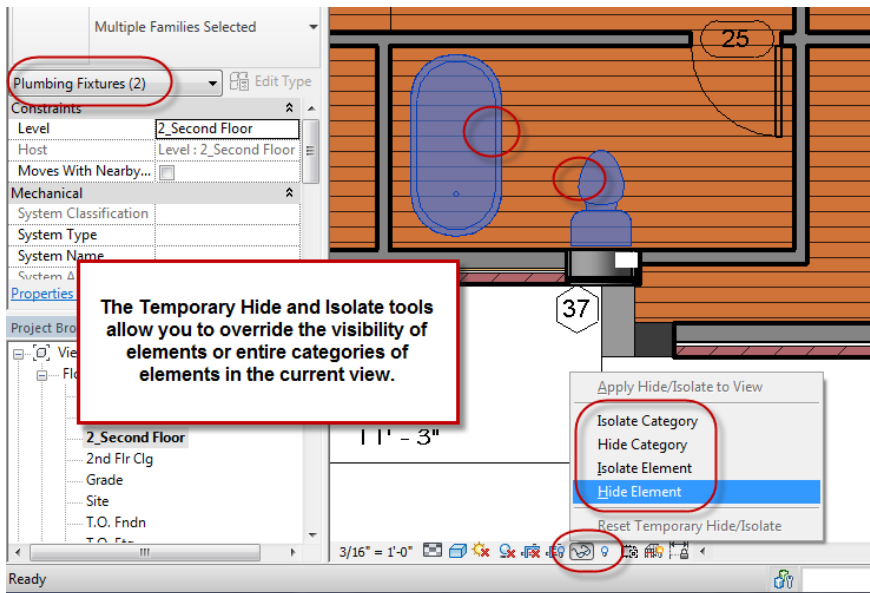
When the Crop region is displayed, you can select the Region to have it display a set of controls on each side of the rectangle which may be used to resize the region by dragging your cursor. The break marks on either side of the resize arrows allow you to optionally remove the portion of the view between the breaks, creating two viewable areas which may be repositioned to create a broken view.

The Edit crop tools on the Ribbon provide more options for creating non-rectangular enclosed areas with sketching tools. Use the Reset crop tool to restore a crop to its default rectangle shape.

If annotation displays outside your crop region, enable the Annotation Crop setting in the Properties Palette when nothing else is selected. This will turn on the display of a second crop region outside the perimeter of the main crop region. The two outlines can be resized separately.

The Hide and Isolate mode on the View Control Bar allows you to temporarily change the visibility of one or more selected elements or the categories to which they belong. This is useful when you wish to conceal items to reduce visual clutter while working or if you wish to display only one or a few elements by themselves so you can work on them more easily.

After you select the element or elements choose one of the four available options from the Hide / Isolate tool. When a temporary visibility override is in effect, the icon will turn Cyan and the drawing view will display a heavy Cyan Border. Hiding and Isolating elements in this fashion applies only to the current view, it will not affect the printing status, and it will not be saved when you close and reopen the Project.



To reset the default visibility for the view, pick the Hide Isolate tool again and choose the Reset Temporary Hide/Isolate option. To change the status of hidden elements from temporary to permanent, choose the Apply to View option.

Any element or category may be set to permanently hidden by selecting the element, right-clicking and choosing the Hide in View / Element or Category option.

To restore the visibility of elements which have been permanently hidden or to select a set of temporarily hidden elements to change their status, use the Reveal Hidden Elements tool at the right end of the View Control Bar. While in Reveal mode, you will be able to see all elements. Visible elements will display in a grey halftone color, temporarily hidden elements will display in Cyan, and permanently hidden elements will display in a Magenta color. Select an element and right click to access the Hide or Unhide in View option.

2. View Properties and Visibility Graphics Overrides

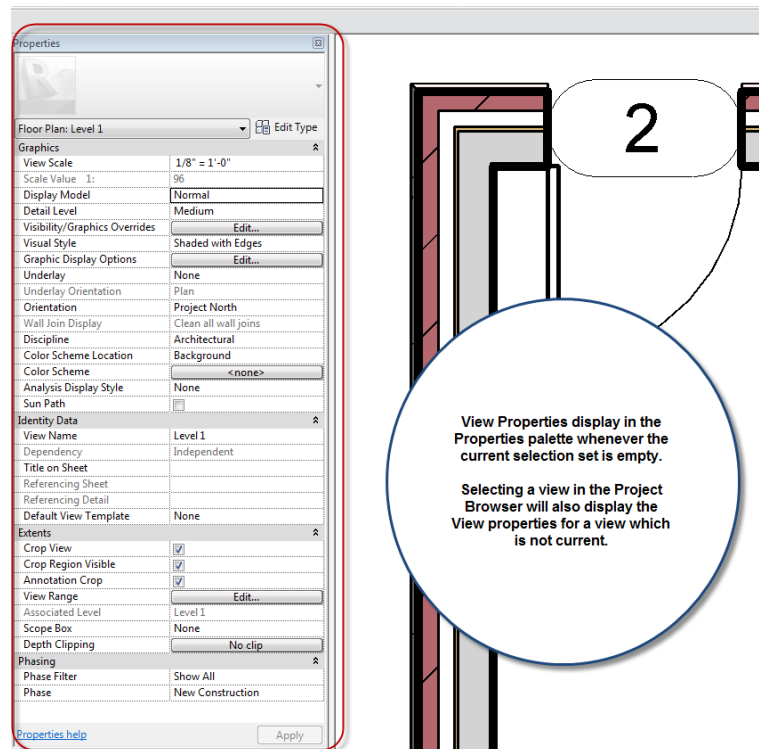
All of the controls and settings from the View Control Bar are also available along with many other powerful options, from the View Properties dialog. The View Properties for the current view will display in the Properties Palette whenever nothing else is selected.

The contents of the View Properties palette will vary somewhat with the current view type. Most views have controls for all settings on the View Control Bar as well as access to Visibility Graphics Overrides for the

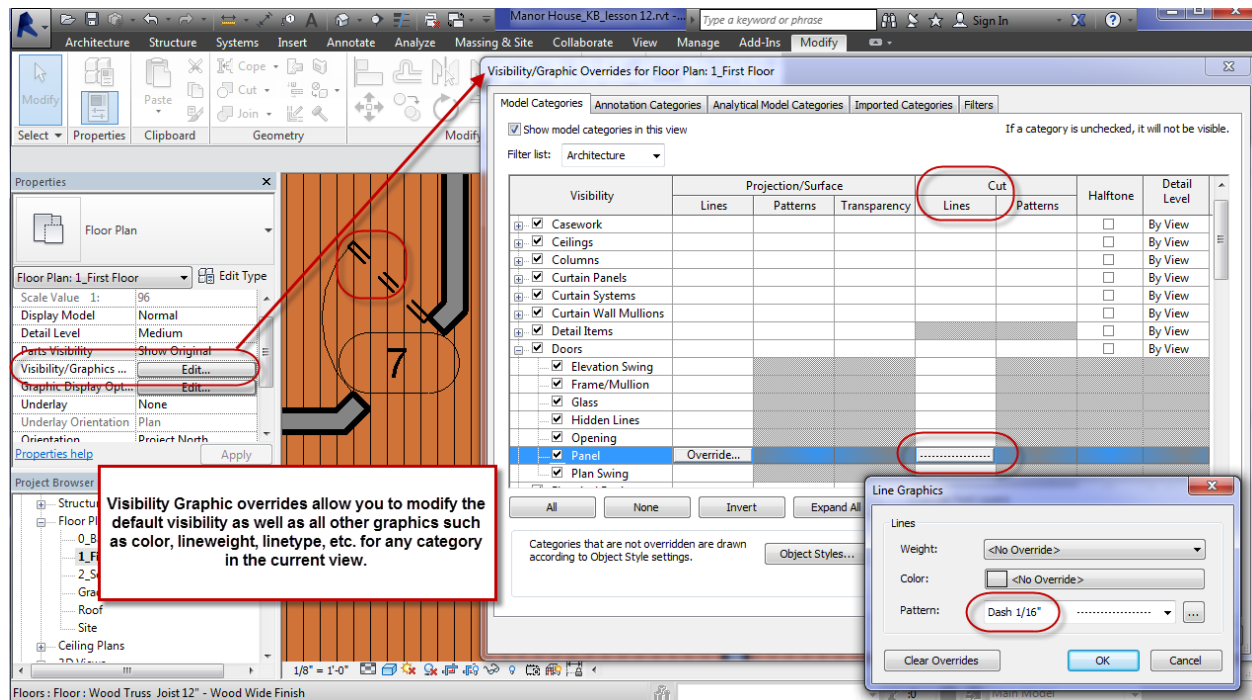
current view. Additional settings included identity data, Underlay information, view name and title on drawing sheets, view ranges and Phase settings.

The Underlay field is a setting unique to plan views, which allows you to specify another slice of the model to display under the current plan view. That slice of the model can be from any height in the building, above or below the current view. By default, in a second floor plan the first floor plan will be displayed in a dimmed, light grey fashion. This can be useful to help align objects such as bearing walls or windows from one floor to the next. When working on a foundation plan, you can set the Underlay to display the floor above.

View Range is another plan property with which you can specify the exact locations for the vertical boundaries of the view. These are specified with the Cut plane height as well as the top and bottom clip planes for the view. These controls can be useful when working with a plan that contains varying floor levels such as a mezzanine. The view range is also useful when setting up a roof plan view.



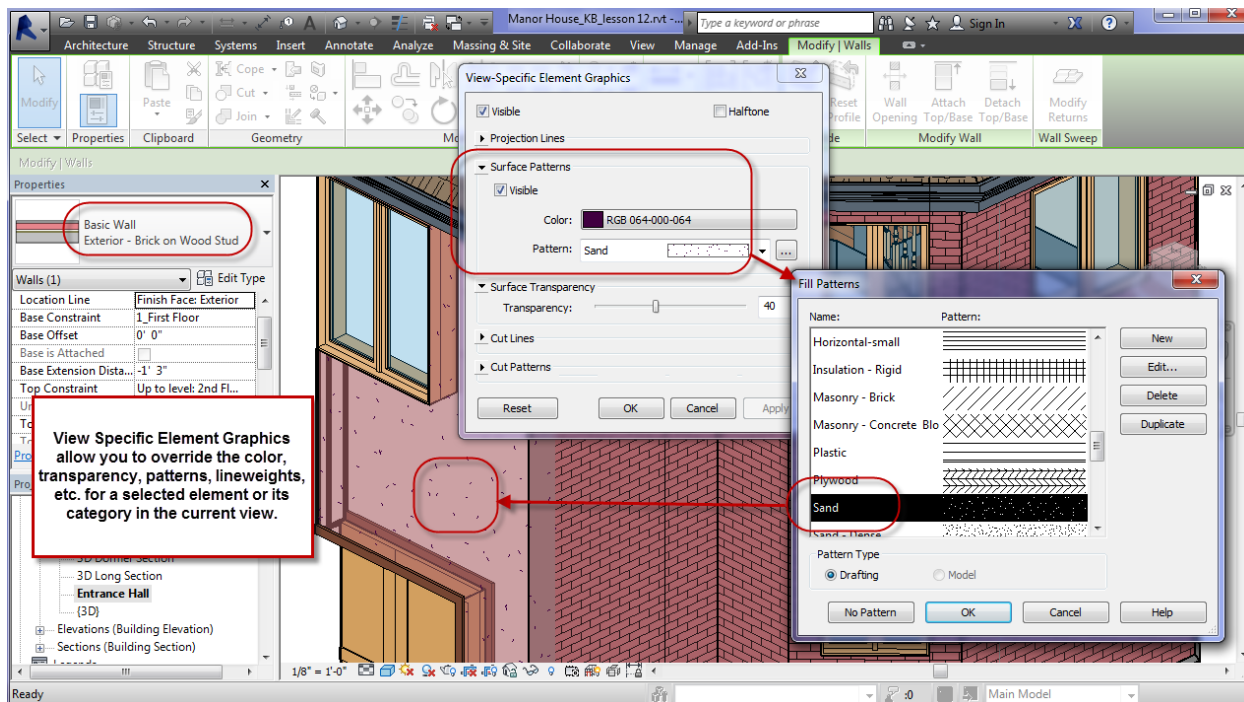
The *Visibility / Graphic Overrides* dialog box, accessed by typing VG or from within the View Properties dialog box, allows you to override any of the default visibility and graphics settings for the display of every type of element which can be created in Revit. These overrides will only apply to the current view.



Controls are grouped under five tabs for Model, Annotation, Analytical Model, Imported, and Filters categories. Every sub-category of every element category has settings for how they will be depicted in various types of views. Projection and surface settings for elevations and Cut settings for plans and sections. Hatch patterns, line weights, line types, and colors as well as the visibility of each element part may be defined. In the image above, the Door Panel sub-category of the Door category has been overridden to assign a dashed line type to the door panels. This will apply to every door of every type in the current view.

If you wish to modify the default behavior or appearance of an element category on a project wide basis, select the Object Styles button in the lower section of the Visibility / Graphic Overrides dialog. Object Styles may also be found in the Settings Menu. Object Styles control the default settings for the entire project and Visibility Graphics overrides can modify those settings on a per view basis.

If you wish to modify the appearance of one or more specific elements in a single view, you can select the objects, right click and choose **Override Graphics in View / By Element**. This will open the *View-Specific Element Graphics* dialog. Here you can set visibility, halftone, and transparency as well as graphic controls such as color, line weight, and pattern for projection lines, surface patterns, cut lines and cut patterns.



The Halftone setting will blend the line color of an element halfway with the background color of a view. Halftone has no effect on material color in shaded views. The surface transparency slider setting will display selected objects with only their edges and fill patterns visible in a semi-wireframe style that allows you to view other objects beyond.

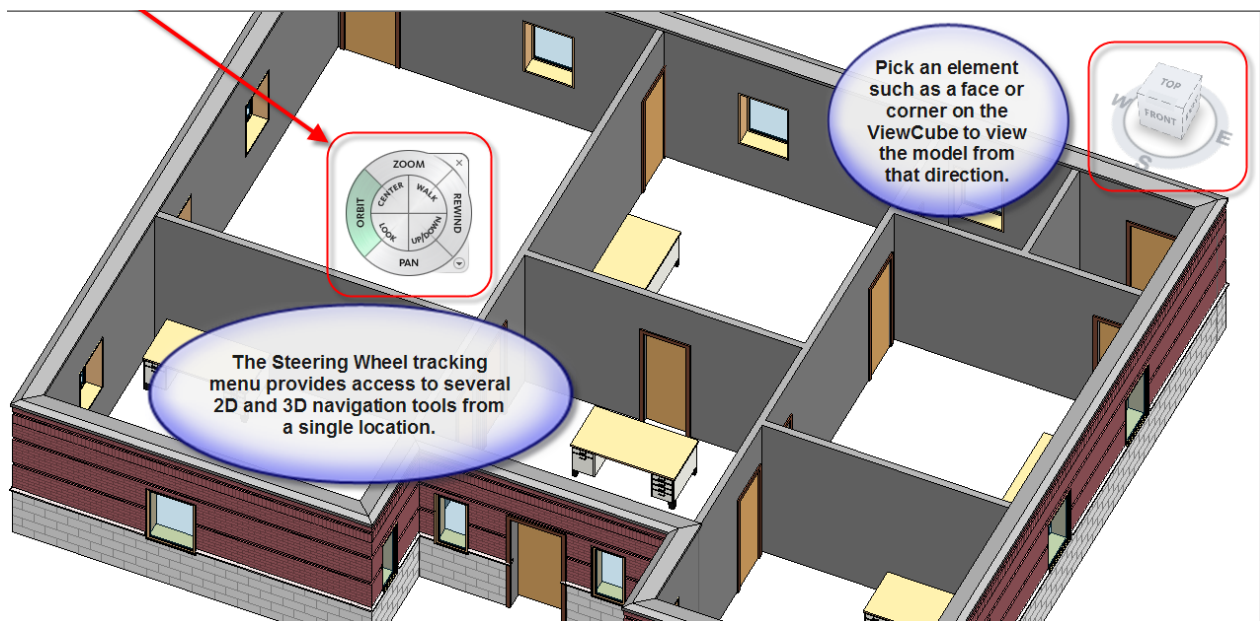
To remove all element graphics overrides, repeat the selection, access the Element Graphic overrides dialog and pick the Reset button in the lower left corner.

If you select objects, right click and choose **Override Graphics in View / By Category**, it will open the same Visibility / Graphic Overrides dialog as for selected elements, but the overrides will apply to all element instances belonging to the selected element's category.

3. 3D Views and Navigation Controls

Selecting the Default 3D View icon on the Quick Access toolbar will create a standard isometric view of your 3D building model. There are a number of ways to change the viewing direction as well as the graphic display of your building.

In all versions of Revit, you can spin a 3D viewing direction at any time by pressing the Shift key, holding down your middle mouse button and dragging your cursor in the direction you wish to orbit the camera around the centre of the view. 3D viewing directions may also be modified with the View Cube and Steering Wheel controls.

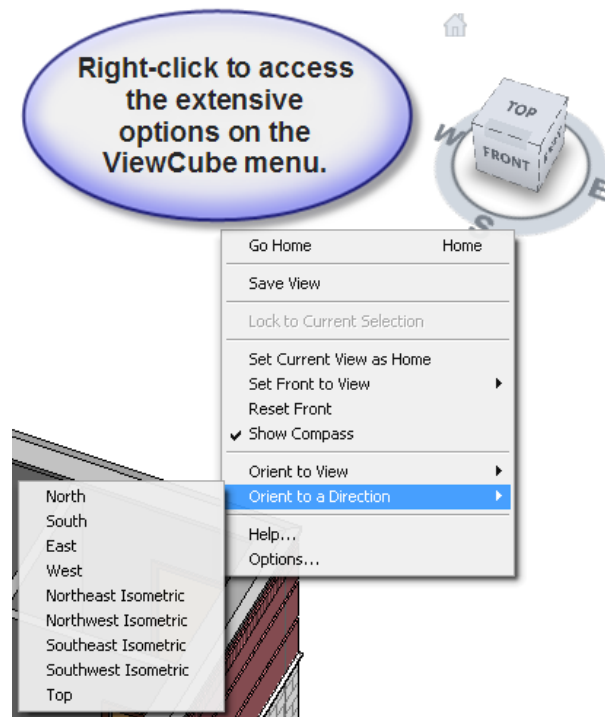


By default, The View Cube will automatically appear in the upper right corner of all 3D views. It initially shows in a semi-transparent Inactive state. When you move your cursor over the View Cube, it becomes Active as indicated by changing to Opaque and displaying a small house icon above and to the left.

When the View Cube is active you can select any face, corner, or edge and the current view will switch to match that orientation. By default, the View Cube will also display a compass with direction labels for N, S, E, and W which may also be selected to set a view direction.

If you pick and drag over the Active View Cube, it will dynamically orbit your view to match the cube rotation.

The View Cube menu allows you to select from all available views including orthographic and isometric directions, any defined plan, elevation, or 3D views, and a Home view which by default will be set to a Southeast Isometric. After setting any 3D viewing direction, you can redefine the Home view from the View Cube menu by selecting the Set Current View as Home option.



You can also redefine the direction which is considered to be the front view of your building. If your design has the front elevation facing East, you can set this appropriately with the Set Front to View flyout.

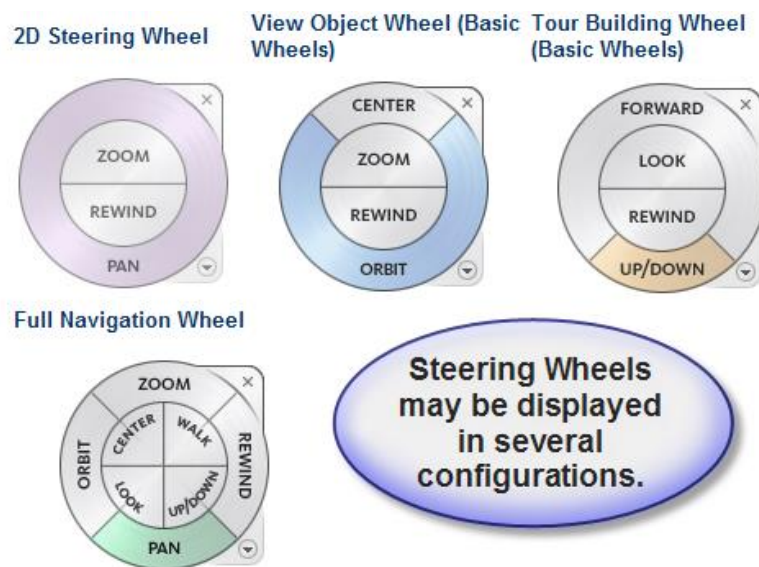
If you select an object and then pick a preset viewing direction with the View Cube, the selected object will be used to define the extents of the new view as the viewing direction changes. It will rotate the view and Zoom in until the selected object fills most of the view.

Selecting Options from the View Cube menu will allow you to control its size, position, opacity and default behavior. To disable the View Cube, toggle its display from the Window menu in any 3D View or deselect Show View Cube in the options dialog.

With the Default 3D View current, you can right click on the view name in the Browser and use the Duplicate View option to create a new, named 3D view. After creating the new view, adjust the view direction as required and then give it a descriptive name by right-clicking on the view name in the browser, and choosing Rename. You can also rename any view by setting it current and then editing the View name property in the Identity section of the properties palette. You can create as many 3D Views in this fashion as required.

Steering Wheels are tracking menus that allow you to access a variety of 2D and 3D Navigation tools from a single tool. The Steering Wheel is view sensitive and will display different options in 2D and 3D views. In a 2D view you will have options for Zoom, Pan, and Rewind which allows you to step back through a series of previous views.

In a 3D View, accessing the Steering Wheel tool icon from the View Toolbar, allows you to open a wheel in one of 3 main configurations: View Object, Tour Building, or Full Navigation. Each wheel is divided into several wedges with a tool on each wedge. You can also display the



steering wheels as Mini Wheels which do not include text labels for the tools and are less obtrusive as you work. Highlighting any wedge displays a tooltip.

As you work, the wheel follows your cursor around the screen. Moving your cursor over one of the wedges and picking, will activate that tool.

The View Object wheel provides 3D navigation tools designed to view objects from the outside. Tools include Center, Orbit, Zoom, and Pan.

The Tour Building wheel provides tools to navigate within the interior of a building. Tools include Forward, Walk, Look, Up/Down, and Rewind. The Full Navigation wheel combines all of the tools from View Object and Tour Building.

Right-clicking a steering wheel provides extensive options for switching wheel types, setting preset views current, accessing options, and Saving a View if a 3D view is current.

Introduction to View Creation and View Navigation Tools

Many View types are available for creation in Revit. A Project started with any of Revit's default templates will include a number of views that are premade including floor plans, ceiling plans, and elevations. These will all appear in the Project Browser under Views.

New Views may be defined a number of different ways including choosing New View tools from the Create Panel on the View tab of the ribbon, adding new Levels to the project , creating camera views, saving new views from the View Cube or Steering Wheel menus, and duplicating existing views. The first time you select the Default 3D View tool in a project, it will generate the initial 3D view.

Levels may be created by choosing the Level tool on the Datum panel of the Architecture tab on the Ribbon and then drawing a line at the desired height in the current view. This method of level creation will automatically create associated plan views. Levels may also be copied in a section or elevation view, but this method does not create associated views. This technique is used to create reference datum levels for which you do not want to create a plan view. For example the Top of Foundation Footing or the Top of Foundation Wall are useful reference points which do not require their own plan views.

Views may also be created from the View menu or from the View tab of the Design Bar. Plan views may be created by referencing existing levels. Detail, Section, and Elevation views are created by dragging reference elements such as section marks or elevation tags into an existing view. Perspective views may be generated by adding Cameras to Plan Views. Walkthrough views are created by defining a path for the camera to follow.

The Project Browser is used to navigate between existing views by double-clicking the View name. If you right-click a view name in the Project Browser, you can choose to Rename the view, Delete the View, access the View Properties, or Duplicate the View.

In addition to using the Project Browser to navigate views, you can also switch between views by double-clicking view reference graphics such as elevation marks, section marks, and levels. Double click the blue portion of any view reference to switch to that view.

Exercise Notes

In the following exercises you will explore the various methods for controlling the visibility and graphic properties for elements in different views. You will also learn how to navigate 3D views, and learn basic methods for creating, deleting, and renaming views.

1. Open the project you started in Lesson 1. In the Project Browser, double-click Level 1 to set it current if your 3D view is still active from the previous lesson. Type ZF to Zoom to Fit and then ZR to define a zoom region around the plan extents.
2. On the View control bar in the lower left of the drawing area, pick the scale and change it to $\frac{1}{4}" = 1' - 0"$. When you change the scale, Revit will automatically redraw all annotation elements relative to the new scale setting. Note that the elevation tags and room tags are both smaller than they were before. Change the scale to $1/16" = 1' - 0"$. Change it again to $1" = 1' - 0"$. Change it once more to $3/16" = 1' - 0"$.
3. Type ZR and zoom into a small area where you can see an exterior wall and an interior wall. On the View Control Bar, beside the scale setting, change the Detail Level from Coarse to Medium. You should now be able to see all of the components that make up the wall except for the inner layer of Drywall.
4. From the Quick Access toolbar, select the Thin Lines icon to hide the line weight assignments. Now you should be able to see every component in the walls, including the layers of Drywall on the interior partitions.
5. Zoom back and Pan over using your middle button and mouse wheel until one office fills your drawing area. Select the Thin Lines icon again to enable the line weight display and note how much easier it is to read the shape of the walls and openings with line weights enabled. This is how the view will plot, regardless of the Thin Lines setting which is only meant to affect the onscreen display. Try changing the Detail level to Fine (no change) and then back to Coarse. Some elements will depict 3 different levels of detail, some will have two, and others may look the same at all detail levels.

6. Select the 3D View icon from the Quick Access toolbar or double click on the {3D} view listed in the Project Browser to set it as the active view. Type ZR and define a Zoom Region around one of the front walls.
7. On the View Control Bar, beside the Detail Level, pick the Model Graphics Style and set it to Wireframe. Pick it again and choose, Hidden. Change it to Shaded. Try setting it to display Consistent Colors and also the Realistic shading.
8. The keyboard shortcuts to switch between the three most commonly used graphics modes are WF, HL, and SD. Try typing all three to see how quickly these shortcuts can be used to set the current mode.
9. On the View Control bar, to the right of the Graphic mode, select the Shadows On tool to enable shadow display for your model. Depending on the graphics card in your computer, it might take a few seconds to regenerate a view with shadows. When the shadows appear, type WF to switch to wireframe and the shadows will disappear. Type HL to go to a hidden line view with shadows. Type SD to go back to the Shaded style.
10. The direction of light is casting shadows over the front of the building. We can adjust the Sun's direction with the Sun Settings options on the Sun Path pop up on the view control bar. We can also change the location and intensity of the shadows. In the properties palette, choose the Edit button beside Graphic Display Options. Expand the Lighting section and select the button beside Sun Setting to open the Sun Settings dialog. Under Solar Study, choose Lighting. Set the preset to Sunlight from Top Left. Pick the apply button and you will be able to see the effect of any changes without exiting the dialog box. Pick ok to close the Sun Position dialog.
11. Still in the Graphic Display Options, try adjusting the sliders for Sun Intensity and also for the Shadows settings. Experiment with different values, choosing Apply to preview the changes. Set the Sun to 75 and the Ambient Light to 25.
12. Under Model Display is the Silhouette style for edges. In the dropdown window for this section select Wide lines and pick Ok to close the dialog. Note the heavy lines drawn around the edges of the model from enabling the Silhouette Edges.

13. Open the Graphic Display options again and enable the gradient fill for the Background. Close the dialog and experiment with changing your 3D view so you are looking down on the model and then up at the model from below. Note the color changes between the "ground plane" and the "sky".
14. On the View control bar, pick the Sun icon and choose "Sun Path On". In the warning dialog, choose the option to "Use the specified project location, date, and time...." option. The Sun Path, when displayed, will show a compass rose, the current project date and the current time with the sun displayed as a yellow sphere. Try picking on the date, highlighted in blue and change the date. Pick outside the date field to set the change and update the sun position.
15. Pick directly on the arc of the sun path and then pick and hold your cursor over it a second time. Drag your mouse to adjust the date dynamically. Pick again directly on the Sun sphere and try dragging it as well to adjust the time of day as well as the date. Experiment a bit with the different changes you can make with the Sun Path and then set it to the current date.
16. Type ZF to Zoom to Fit. Experiment with zooming in and out with your mouse wheel or by defining Zoom Regions. Try panning the view. You may see that working with shadows enabled will make it take longer to change views as Revit will need to recalculate the shadows each time. Toggle the Shadows off. Try panning and zooming around the model again.
17. The silhouette edges are still displayed and may be turned off and on independent of the Shadows. Open the Graphic Display Options again and set the Edges line style back to none. Pick Ok to close the dialog and return to the view.
18. Zoom into one of the rooms where you can see a desk against a wall. From the View Control Bar, select the Render tool. (teapot icon) In the quality pulldown, select Medium. Review the other settings in the Render dialog without adjusting anything and then pick the Render Button at the top of the dialog box. The rendering will be drawn on your screen in two passes over the next few seconds or possibly a couple of minutes depending on the size of your view and the speed of your computer processor. View the wall behind the desk and see if you can notice a slight reflection of color on the wall from light bouncing off the desk. This type of color bleed effect is very realistic and helps to make renderings much more believable.

19. At the bottom of the Render dialog, pick Show the Model. Pick Show the Rendering. I like that too.
☺ Now, in the Image section, choose Save to Project and call the image 3D Test Render 1. Pick OK. In the same section, choose Export, in the name field, enter 3D Test Render 1. Confirm the file type is set to jpeg and browse to the desired file location. Pick ok.
20. Close the Render dialog. The view will revert back to the shaded view. In the Project Browser, under Views, a new Renderings category has been added. Expand this category and double click the 3D Test Render 1 to display your saved rendered view. Double click on the Level 1 view in the Project Browser to switch to the floor plan view.
21. Type ZF to do a Zoom to Fit. You have probably noticed by now that when we Zoom to Fit, the elevation tags in the plan view are also included in that calculation. If they are spread out much larger than our actual building, we have to do more zooming than we should. Zoom in on one of the tags. Move your cursor over the triangle portion until it highlights and shows a tooltip indicating that it is a view. Pick the triangle and a line appears indicating the defining location for the West elevation view. The properties palette will show a description of that view and all of the properties controlling its appearance. Double click the triangle to switch to the elevation view.
22. In the Project Browser, double click Level 1 and you will return to your previous view. Float your cursor over the rectangle and it will highlight separately from the triangle.. Pick it to view its properties. This is a separate part and if you pick the Edit Type button in the properties palette, a new dialog appears. Because there are two parts to this elevation tag, you need to ensure that if you move one, the other moves as well.
23. Pick a point above and to the left of the tag and drag your cursor down and right to select both portions of the tag and then move the elevation tag closer to the building. Repeat with the remaining tags. Now, type ZF to Zoom to Fit and your building will occupy a larger portion of the view.
24. On the View Control Bar, choose Show Crop Region and then Crop View tool and if the elevation tags are inside the rectangle they will be hidden. Type ZF and it will zoom further away from the model. Select the Show Crop Region tool beside the Crop View tool and you will see why. Cropped views will zoom to the extents of their crop region. Select the Crop View toggle again to disable Cropping. Type ZF.

25. Cropped views may be used to enlarge a specific area of a drawing. If we wanted to work on only the west wing or only the entrance area of this building, we could crop a view to focus on that section and hide the rest of the plan. In the Project Browser, right click on the active Level 1 heading and choose Duplicate View / Duplicate. In the Project Browser the new view, Copy of Level 1 is now active. Note that the room tags and door tags are not included in this view. Right click on the current view in the Project Browser and choose Delete.
26. When you delete an active view, Revit will switch back to the last view which was active, in this case the Level 1 view. Right-click the Level 1 view again and choose Duplicate View / Duplicate with Detailing. This time the copied view has retained the annotation tags. Select the Crop View tool. Type ZF. Select Show Crop Region. Move your cursor over the Region frame until it highlights and then pick to select the Region. Pick and drag the blue control circles to resize the Region frame and adjust the border to display just outside the Office 106 walls.
27. The annotation tags from the previous view have been duplicated in this view and the tags outside the Crop region are still visible. We don't need to see them but if you delete the tags you will also delete the associated elevation views so instead we can hide them with the annotation crop region.
28. Clear any selection and in the Properties palette scroll down to the Extents section. Select the Annotation Crop option and pick OK. Select the crop Region and a second region will appear as a dashed line. Resize the annotation crop as close as possible to the basic crop region.
29. In the View Properties palette, under Graphics, set the View scale to $3/8" = 1'-0"$ and the Detail level to Medium. Pick Ok to apply and close the dialog. Type SD to shade the view.
30. Since we copied this view with detailing, all of the door tags were copied as well as the Room Tag. We can hide one or more elements of any category a number of ways. Pick one of the door tags, right-click and choose Hide in View / Element. Select the Reveal icon from the View Control Bar. The hidden element is shown in the same red color as the Reveal mode border around the View. This indicates it has been permanently hidden and will not be plotted. Disable the Reveal mode to hide the element again.

31. Select a second door tag, right click and choose Hide in View / Category. This time all door tags will be hidden. Select the Reveal tool to show the hidden elements. Pick one of the red door tags and from the options bar choose Unhide Category. All of the door tags except the one that was hidden at an element level are shown in grey. Select this last tag and from the options bar choose Unhide Element. Toggle the Reveal mode back off and all of the tags will be visible again.
32. When Element categories are hidden, it disables the visibility setting for that category in the Visibility / Graphic Overrides dialog box. Type VG to access these settings. Select the Annotation Categories tab at the top and deselect the Door Tags under Visibility heading. Pick Ok. Select the Reveal tool and you will the door tags again shown in Red.
33. In the Project Browser, under 3D Views, double-click the {3D} to switch to the default 3D view. Move your cursor over the View Cube in the upper right corner and try picking on the various corners, edges, and faces, which highlight as you float your mouse over them. Pick and drag on the View Cube to dynamically orbit the view in any direction. Zoom in on one room and try picking or dragging on the View Cube to adjust the view. The center is at the middle of the model and not the middle of the current view Zoom into one of the rooms with a desk. Select the desk and with it highlighted, pick and drag on the View Cube again. This time the center of the orbit is at the centroid of the selected objects.
34. Press the Shift key and pick and drag with your middle mouse button. Try selecting different elements in the model and use the Shift-middle button method to rotate your view. This method orbits the view in the same fashion and you may find it more intuitive than the View Cube.
35. Select one of the Desks and from the Temporary Hide Isolate tool on the View Control Bar pick Isolate Element. The screen border will turn Cyan indicating that objects are temporarily hidden. Examine the Desk family from all directions by picking and dragging with the View Cube and also with the Shift-Middle button method.
36. Toggle the Reveal mode to see the rest of the building in its Cyan, hidden state. Toggle Reveal back off and then from Hide / Isolate choose the Reset option. Obtain a view of the model from the Southwest Direction. Select one of the Exterior Walls and set it to Hide element from the temporary Hide / Isolate tool. This allows you to look into the building. We can also set the walls to be transparent instead of hiding them. Reset the Hide Isolate.

37. Move your mouse over one of the exterior walls and when it highlights, press the TAB key to highlight the entire chain of end-connected walls. Pick one wall and all will be selected. Right-click and choose Override Graphics in View / By Element. In the View –specific element graphics dialog, expand the surface transparency option and adjust the slider to 50. Choose the Halftone option at the top and pick Apply. Review the remaining options and close the dialog.
38. Pick one Window, right click and choose Hide in View / Category. Select the front door, right-click and choose Select all Instances. With the three exterior doors selected, right-click and choose Hide In View / Element.
39. Right-click on the View Cube and choose Save View. Name the new view SW Iso-Transparent Exterior. Note the new view name under 3D Views in the Project Browser.
40. Select the 3D View icon on the Quick Access tool bar to switch to the Default 3D View. Select the Steering Wheel tool from the navigation toolbar and move your cursor back over the drawing area. The Full Navigation Wheel appears attached to your cursor. Select the arrow in the lower right corner of the Wheel or right-click to see the available options. From the Basic Wheels flyout, choose the View Object Wheel.
41. Pick and drag on the Center option on the View Object Wheel and you will be prompted to select a pivot point somewhere on your model. Place the pivot sphere on one of the doors.
42. After setting the Center pivot point, highlight the Orbit option and pick and drag to orbit the view around the Center point. Pick Center again and drag the pivot point to a new location. Orbit the view again until you can see the back wall of the building. Pick the X in the upper right corner of the Wheel to close the tool.
43. Pick one of the desks, right-click and choose Hide in View, Category.
44. Pick one of the exterior walls, right-click and choose Select all Instances. Right-click again and choose Override Graphics in View / By Element. Expand the Surface Patterns section and in the pattern section select Gypsum-Plaster. Select the Color button and choose the upper left corner in the basic colors section to set a Salmon color for the plaster. Pick Ok and then Ok again. Type HL to switch to a Hidden Line view.
45. From the View toolbar, open the Steering Wheel and drag it into the view. Orbit, Pan and Zoom the view to obtain a steep angled view from above and the rear. When it looks good, right-click on the Steering Wheel and choose Save View. Call the new view, NW_Stucco_Walls and pick Ok.

46. Switch to the Level one view. Type VG and select the Annotations Category. Under visibility, clear the checkmark beside Elevations. Pick OK. Type ZF to Zoom to Fit. ☺
47. Save your project and backup the file to a removable drive. We will continue with this exercise in the next class.



